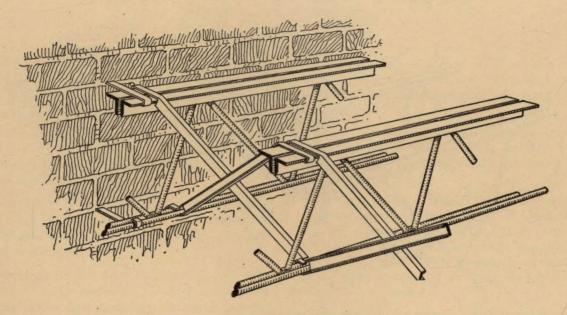


STEEL JOISTS

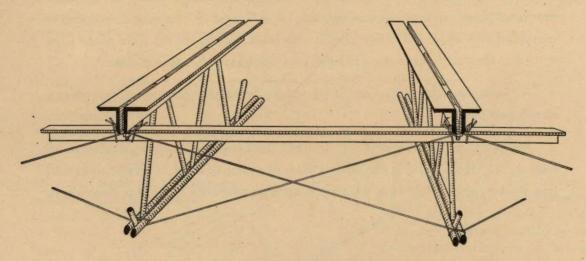
CECO STEEL PRODUCTS CORPORATION





Strut Bridging

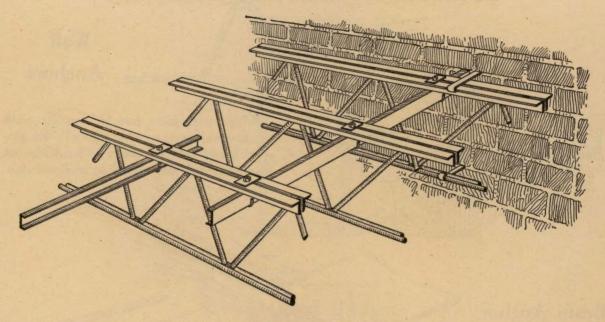
For a positive rigid bridging easily installed, this 3/4" channel type bridging proves itself economical and satisfactory, holding the joists in a vertical plane, accurately spacing them, also acting in tension and compression to evenly distribute the loads.



Clear Top Bridging

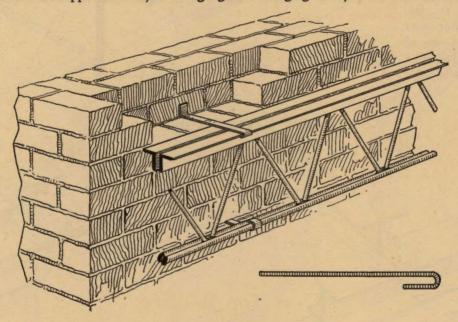
Where composition plank or pre-cast materials are used as decking on joists, to set same properly it is essential that the top of joists be uniform and free from bolt heads, nuts, bridging prongs, etc. We recommend the specification of CLEAR TOP BRIDGING to be assured that the manufacturer of joists will furnish this type bridging.





Beam Bridging

Standard beam type of bridging is a $2''x\frac{1}{2}''$ hot rolled channel secured to top chord of joist with a 1/8 J bolt and plate washer supplemented by No. 14 gauge wire bridging to stay the bottom chords.



Lateral Anchor

At the end of each row of bridging $1"x\frac{1}{8}"$ lateral anchors are used as in the above figure. These may be bent up in the wall or around the flange of parallel beams as the case may be.

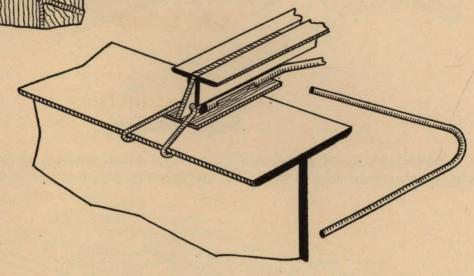


Wall Anchors

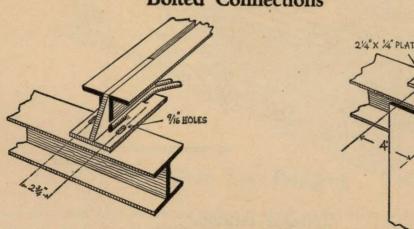
Where steel joists rest on masonry walls necessary anchorage is provided by a 3/8" Rd. government type anchor as shown by detail. Not less than every 3rd joist should be anchored thus.

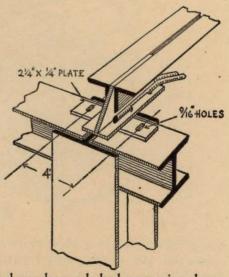
Beam Anchor

Each joist resting on a structural steel member is anchored by means of a ¼" Rd. hairpin anchor bent around the flange of the supporting member as in the figure at right.



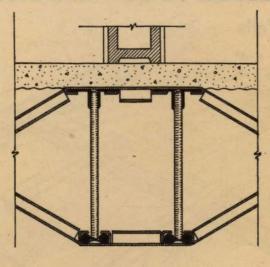
Bolted Connections





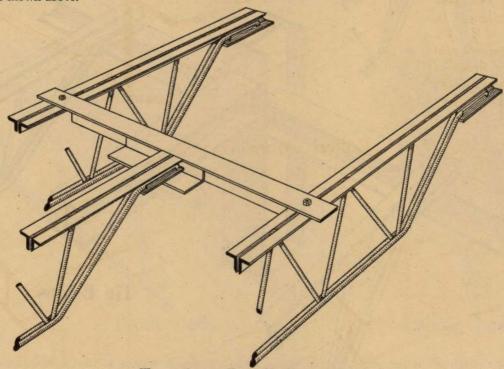
Where joists are desired bolted at end bearing plate to structural members, a bolted connection shown by detail above left is furnished. Where this is not applicable, a special plate can be furnished as illustrated by detail above right.





Double Joist Bridging

Where double joists occur, such as directly under a partition or on either side of an opening, they are held together rigidly by means of channels with one toe and web coped back and the remaining toe bent around the chords as shown above.



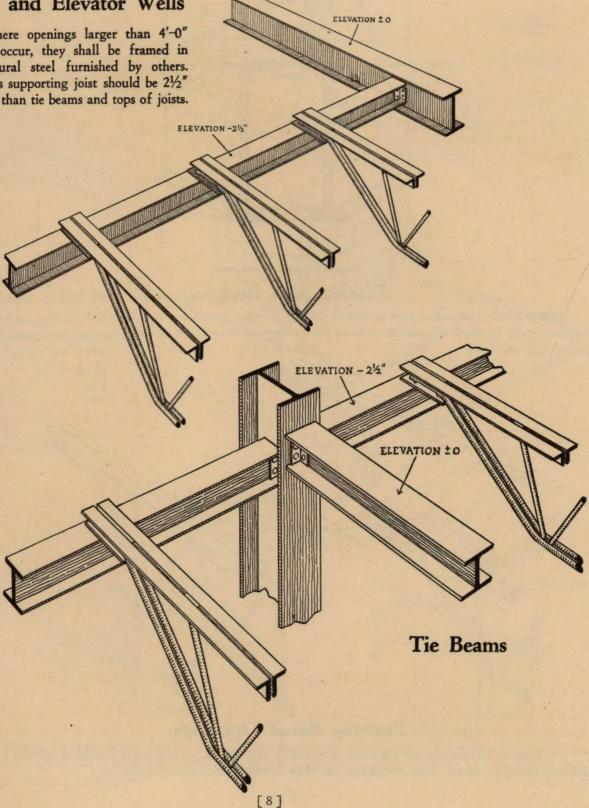
Framing Small Openings

For framing of openings not exceeding four feet at right angles to joists, angle headers are provided as shown in the figure above. Larger openings should be framed entirely by structural steel.



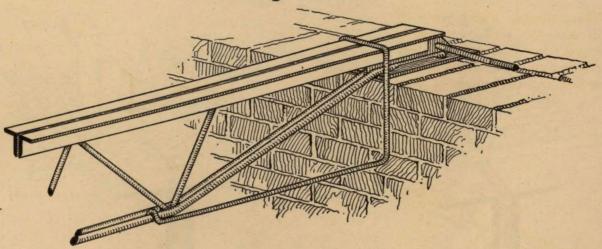
Stair and Elevator Wells

Where openings larger than 4'-0" wide occur, they shall be framed in structural steel furnished by others. Beams supporting joist should be 21/2" lower than tie beams and tops of joists.

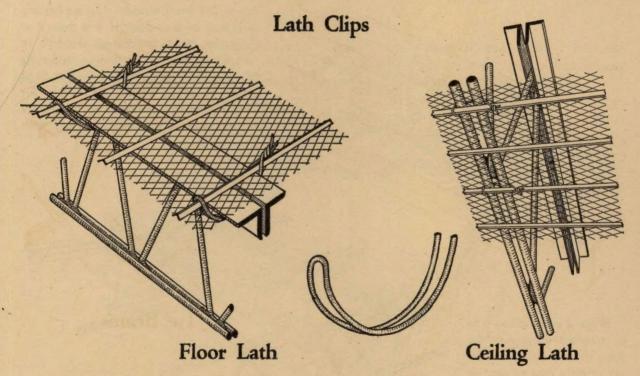




Ceiling Extension



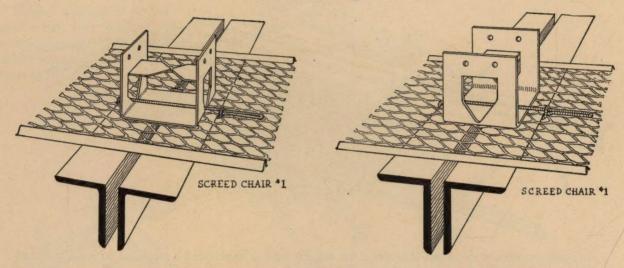
In order to support the metal lath along the bearing wall or beam when a plastered ceiling is attached directly to the joist, round extension rods are supplied as illustrated in the above figure. They are attached after joists are in place.



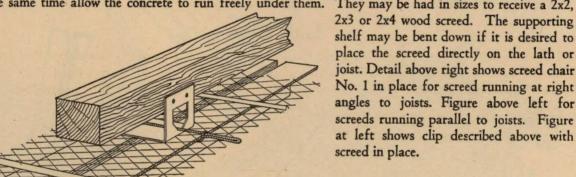
CECO lath clips provide positive attachment of both top lath and ceiling lath at the rib; not between the ribs. Method of installation is simple. The clip is held by the loop end in the left hand, and, with one free end on each side of the rib, is guided through the lath, around the under side of the chord, and back up through the lath. The two free ends are then twisted together tightly around the rib.



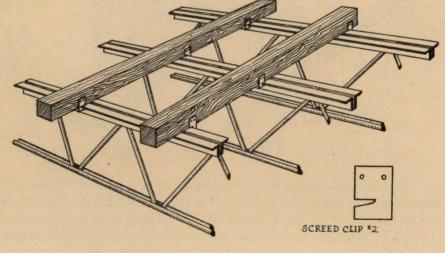
Screed Clips



Ceco screed chairs as shown above provide a firm anchorage for nailing strips in either direction and at the same time allow the concrete to run freely under them. They may be had in sizes to receive a 2x2,

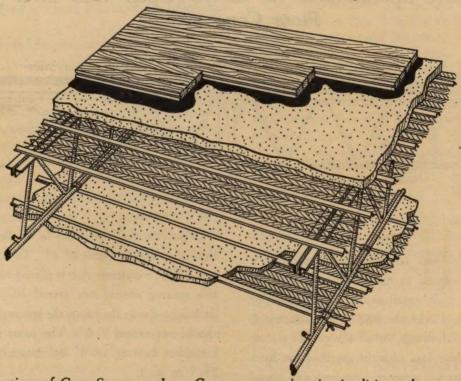


When a wood screed is to be attached directly to the joist, the clip shown in Figure at right may be used or they may be bolted to the joist by running the bolt between the angles forming the top chord of the joist.

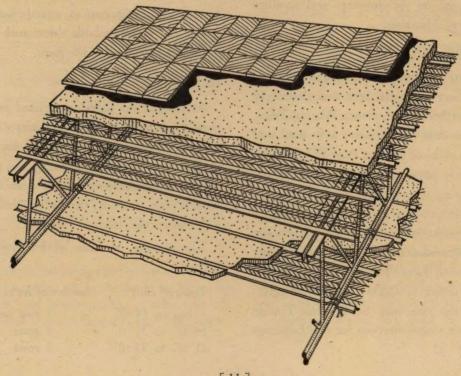




Typical Details of Ceco Steel Joists

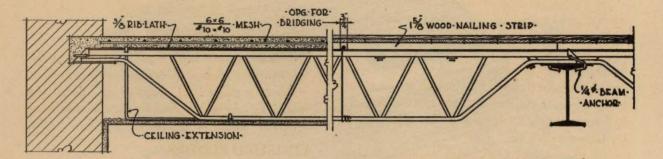


These sections of CECO STANDARD JOIST CONSTRUCTION show its simplicity and economy. Note the accessible space for conduits, pipes and ducts. Also the ease of applying by mastic various floor finishes such as Hardwood, Parquette, Tile and Linoleum. Terrazzo and Carpeting can readily be installed.





Standard Specifications for CECO Open Web Steel Joist Floor Construction



GENERAL

Where steel joist construction is specified, it shall be understood to mean CECO OPEN WEB STEEL JOISTS or its equal as may be approved by the Architect, of the size and at the spacing as shown on the drawings, or of the proper size to support the dead load plus the specified live load. The steel joists will support a concrete slab placed on a self centering form as hereinafter specified and protected by a fire-resisting ceiling construction as indicated on the drawings and specified under Plastering Materials.

CECO STEEL JOISTS

The joists are to be made of hot rolled structural grade round bars or angles, bent and electrically arc welded together so as to form a Warren Truss. No bars of less than 3/8" diameter to be used, and bearing plates to be of not less than 1/8" thickness shall be securely attached to all joists. The top chord members are to be straight; the bottom chord bars are to be bent up over the end bearing plates. All members of the joists shall be of sufficient size to meet the requirements of the Steel Joist Institute Specifications and Load Tables. The steel used in the manufacture of CECO OPEN WEB JOISTS conforms to the American Society for Testing Materials standard specifications for steel buildings designation A7-42.

In no case shall the joists in the floor construction be spaced in excess of 24". In roof construction, where a concrete slab is placed over the joists, this spacing should not exceed 30", where steel deck is used over the joists, the spacing of the joists should not exceed 7'-0". The joists shall have a minimum bearing of 4" on masonry walls and $2\frac{1}{2}$ " on steel.

PAINT

All joists are to be painted before leaving the factory with a dip coat of asphalt base steel protective paint. No volatile driers such as gasoline or naptha to be used in the paint.

BRIDGING

As soon as the joists are erected in place they must be securely bridged by means of hot rolled sections. This bridging supports the top chord against lateral movement during the construction period. It is important that the joists be kept in a vertical plane and that they be well bridged before any construction loads are applied.

The number of lines of bridging to be as follows:

Span of Joist	Number of Rows of Bridging
up to 14'-0" 14'-0" to 21'-0" 21'-0" to 32'-0"	1 row near center 2 rows 3 rows

This bridging to consist of one of the following types:—

- (a) $\frac{3}{16}$ Round diagonal tension members supplemented by a continuous $\frac{1}{2}$ round steel bar placed on top of and transversely to the joist to act as a top chord strut. The diagonal member must be wound around the bottom chord of all joists and extended diagonally upward through the open web of the adjacent joist and wound tightly around the $\frac{1}{2}$ strut bar on the far side of the top chord of the adjacent joist, or,
- (b) Diagonal members made from cold rolled channels, capable of resisting both tension and compression. These channels to have webs notched and the outstanding legs to be wrapped securely around joist chords.

ANCHORS

Every third joist end bearing on masonry is to be anchored into the wall with a government type of anchor of at least $\frac{3}{8}$ " diameter and every joist end bearing on structural steel is to be attached with a standard beam anchor.

At the ends of each row of bridging place a side anchor made of a flat bar 1/8"x1".

CENTERING

Over the steel joists a self centering form shall be used, this form to be either of the following:—

- (a) Rib lath of the following weights:
 - (1) Joists spaced up to 19"-\%"-3.4\%.
 - (2) Joists spaced 19" to 24" 1/8"- 4#.
 - (3) Joists spaced 24" to 30"-3/"-.50%.
- (b) 28-gauge black corrugated sheets.

In either case, ribs of the centering used should be transverse to the run of the joists. The centering is to be attached to the joists by means of positive tie wire clips spaced not over 12" on center.

PRECAST SLABS

The contractor installing pre-cast slabs over steel joists shall provide, when necessary to insure a uniform and level bearing, shims or some type of plastic material over top flange of each joist where required.

Clear Top Bridging shall be used to bridge joist as illustrated on Page 9 in CECO'S 39-PAGE STEEL JOIST HANDBOOK (and duplicated on Page 4 of Ceco's 23-Page Bulletin No. 3002).

SLAB REINFORCING

Where the floor finish is to be other than wood, the structural slab shall be reinforced with 6"x6" number 10 gauge steel fabric or 1/4" pencil rods spaced 12" on center, running parallel and transversely to the run of the joists.

FINISHED FLOORS

Where floor finish is wood, composition tile, linoleum, etc., the structural slab shall be screeded to a true level surface, removing any lumps or stones which might affect the surface. It shall be cleaned of all laitance, grease and loose foreign matter and be bone dry. The finished floor covering shall then be laid in a bed of mastic in accordance with manufacturer's specifications.

CEILING LATH AND PLASTER

For ceiling lath and furring materials see Plastering specifications hereinafter noted.

Where the ceiling lath is to be attached directly to the under side of the joists, CECO standard ceiling extensions are to be furnished, and \(^8\set^n\) Rib Lath of weight specified to be wired around the rib to the bottom chord of joists with 18 gauge galvanized wire. No clips shall be used that do not provide a positive tie.

Plaster ceilings shall be not less than 3/4" in thickness and shall be of cement, hard wall or gypsum plaster.

PIPING INSTALLATION

No pipes or conduits shall be fastened to, or come in direct contact with, any member of the steel joists. Insulation must be used in hanging or laying pipes and conduits to steel joists, and pipes shall be securely anchored and braced in order to eliminate any unnecessary vibration. No member of the joists shall be bent or cut to permit passage of pipes or ducts, they must be run in space provided.



Steel Joist Loading Table

In preparing this table, the Ceco Steel Products Corporation has designed the CECO OPEN WEB STEEL JOISTS in strict accordance with the specifications of the Steel Joist Institute.

The following table gives the TOTAL safe uniformly distributed load carrying capacities of the CECO OPEN WEB STEEL JOISTS at various spacings. The weight of the DEAD loads must be deducted to determine the live load carrying capacities of the joists.

TABLE No. 1

		Total			Тота	al Saf	E LOAI	os in I	POUND	S PER	SQUAR	E Foo	r FOR	VARIO	us Joi	ST SPA	CINGS		
Clear Span	Joist Type	Safe Load Pounds	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23''	24"	25"	26"	28"	30"
4'-0"	81	3200	800	738	685	640	600	565	533	505	480	456	436	417	400	384	369	343	320
4'-6"	81	3200	711	657	610	568	533	503	474	449	427	406	388	371	355	341	328	305	284
5'-0"	81	3200	640	590	549	512	480	453	427	404	384	366	349	334	320	307	295	274	256
5'-6"	81	3200	582	537	498	465	436	411	488	367	349	332	317	303	291	279	268	249	233
6'-0"	81	3200	530	492	457	426	400	376	356	337	320	305	291	278	267	256	246	229	213
6'-6"	81	3020	464	428	398	371	348	328	310	293	278	265	253	242	232	223	214	199	186
7'-0"	81	2810	402	370	344	321	301	283	268	254	241	229	219	209	202	193	185	172	160
7'-6"	81	2620	349	322	299	279	262	246	233	220	209	199	190	182	174	167	161	150	140
8'-0"	81	2460	308	284	264	246	231	217	205	194	184	176	168	160	154	148	142	132	123
	82	3800	475	438	407	380	356	335	316	300	285	271	259	248	238	228	219	204	190
8'-6"	81	2310	272	251	233	218	204	192	181	172	163	155	148	142	136	131	125	116	109
	82	3800	447	413	383	358	336	316	298	282	268	255	244	233	223	215	206	192	179
9'-0"	81	2180	243	224	208	194	182	171	162	153	145	138	132	127	121	116	112	104	97
	82	3800	422	390	362	338	316	298	282	266	254	242	230	220	211	203	195	181	169
9'-6"	81 82	2070 3690	218 388	201 358	187 332	174 310	163	154	145	138	131	124	119	113	109	105	101	93	87
10'-0"	81	1970	197	182	169	158	291	274	259	245	233	222	212	202	194	186	179	166	155
100.	82	3500	350	323	300	280	148 263	139	131 233	125 221	118 210	113	108 191	103 183	99	95	91	85	79
	102	3800	380	351	326	304	285	268	253	240	228	217	207	198	175	168 182	162 175	150 163	140 152
	103	3900	390	360	334	312	292	275	260	246	234	223	213	203	195	187	180	167	156
	104	4400	440	406	377	352	330	312	293	278	264	252	240-	230	220	211	203	189	176
10'-6"	81	1860	177	164	152	142	133	125	118	112	106	101	96	92	88	85	82	76	71
	82	3335	317	293	272	254	238	224	212	201	190	181	173	165	158	152	146	136	127
	102	3800 3900	362 371	334 342	310 318	290 297	271 278	255 263	241 248	228	217	207	197	189	181	174	167	155	145
	104	4400	419	387	359	335	314	296	280	234 265	223 252	212	203 229	194 219	186 210	178 201	171	159	149
11'-0"	81	1780	162	150	139	130	121	114	108	102	97	92	89	85	81	78	193 75	70	168
0	82	3180	289	267	248	232	217	205	193	183	174	165	158	151	145	139	134	124	65 116
	102	3800	346	319	297	277	259	244	230	218	208	197	189	180	173	166	160	148	138
	103	3900	355	328	304	284	266	250	236	224	213	202	194	185	178	170	164	152	142
	104	4400	400	370	343	320	300	283	267	253	240	228	218	208	200	192	185	172	160
11'-6''	81 82	1700 3040	148 264	136	127 227	118 212	111	104	99	93	89	84	80	77	74	71	68	63	59
	102	3650	317	244 293	272	254	198 238	187 224	176 211	167 201	159 191	151 181	144	138 165	132	127	122	113	106
	103	3900	339	313	291	271	254	239	226	214	203	194	185	177	159 170	152 163	147 157	136 145	127 136
	104	4400	383	353	328	306	287	270	255	242	230	219	209	200	192	184	177	164	153
12'-0"	81	1635	137	126	117	109	102	96	91	86	82	78	74	71	68	65	63	58	55
	82	2920	243	224	208	195	183	172	162	154	146	139	133	127	122	117	112	104	98
	102	3500	292	269	250	233	219	206	194	184	175	167	159	152	146	140	135	125	117
	103	3900	325	300	279	260	244	230	217	205	195	186	177	170	163	156	150	139	130
	104 123	4400 4400	367 367	339 339	314	294 294	275 275	259 259	244	232 232	220 220	210 210	200	191	183	176	169	157	147
	124	4600	384	354	329	307	288	271	256	242	230	219	200	191 200	183 192	176 184	169 177	157 164	147 153
	125	5000	417	385	358	333	312	294	278	263	250	238	228	218	208	200	192	179	167
	126	5400	450	415	386	360	338	318	300	284	270	257	246	235	225	216	208	193	180



01	Taire	Total			Тота	L SAFE	LOAD	s m P	OUNDS	PER S	QUARE	Foor	FOR V	ARIOU	s Jois	T SPAC	ZINGS		
Clear Span	Joist Type	Safe Load Pounds	12"	13"	14"	15"	16"	17"	18"	19"	20′′	21"	22"	23"	24"	25"	26''	28"	30''
12'-6"	81	1570	126	116	108	100	94	89	84	79	75	72	68	65	63	60	58	54	50
	82	2800	224	208	192	179	168	158	149	142	134	128	122	117	112	108	103	96	90
	102	3360	269	248	231	215	202	190	179	170	161	154	147	140	134	129	124	115	108
	103	3900	312	288	268	250	234	220	208	197	187	178	170	163	156	150	144	134	125
	104	4400	352	325	302	282	264	248	235	222	211	201	192	184	176	169	162	151	141
	123	4400	352	325	302	282	264	248	235	222	211	201	192	184	176	169	162	151	141
	124	4600	368	340	316	295	276	260	246	233	221	210	201	192	184	177	170	158	147
	125 126	5000 5400	400 432	369 398	343 370	320 345	300 324	283 305	267 288	253 273	240 259	229 247	218 236	209 226	200 216	192 207	185 199	172	160 173
13'-0"	81	1510	116	107	100	93	87	82	78	73	70	66	63	61	58	56			46
10 -0	82	2690	207	191	177	165	155	146	138	131	124	118	113	108	103	100	54 96		83
	102	3230	248	230	213	199	187	176	166	157	149	142	136	130	124	119	115		99
	103	3900	300	277	257	240	225	212	200	190	180	172	164	157	150	144	138		120
	104	4400	338	312	290	270	254	239	225	214	203	193	184	177	169	162	156		135
	123	4400	338	312	290	270	254	239	225	214	203	193	184	177	169	162	156		135
	124	4600	354	327	303	283	265	250	236	224	212	202	193	185	177	170	163	-	142
	125	5000	384	355	330	308	288	272	256	243	231	220	210	201	192	184	177		154
	126	5400	415	384	356	332	312	293	277	262	249	237	226	217	208	199	192	177	166
13′-6′′	81	1450	107	99	92	86	81	76	72	68	64	61	59	56	54	52	50	46	43
	82	2590	192	177	164	154	144	135	128	121	115	110	105	100	96	92	89	82	77
	102	3110	230	213	197	184	173	163	154	146	138	132	126	120	115	111	106	99	92
	103	3900	289	267	248	232	217	204	193	183	173	165	158	151	145	139	133	124	116
	104	4400	326	301	280	261	244	230	217	206	196	186	178	170	163	156	150	140	130
	123	4400	326	301	280	261	244	230	217	206	196	186	178	170	163	156	150		130
	124	4600	341	315	292	273	256	241	227	216	204	195	186	178	170	164	157		136
	125 126	5000 5400	371 400	342	318	296 320	278 300	262 282	247 267	234 252	222	212 229	202	194	186 200	178 192	171		148
14'-0"	81	1400	100	92	86	80	75	71	67	63	60	57	55	52	50	48	46		40
14 0	82	2500	178	165	153	143	134	126	119	113	107	102	98	93	89	86	82		71
	102	3000	214	198	184	172	161	152	143	135	129	123	117	112	107	103	99		86
	103	3900	278	257	239	223	209	197	186	176	167	159	152	145	139	134	129		111
	104	4400	314	290	270	252	236	222	210	199	189	180	172	164	157	151	145		126
	123	4380	313	289	268	250	235	221	209	198	188	179	171	163	156	150	144		125
	124	4600	328	303	282	263	246	232	219	208	197	188	179	171	164	157	152		131
	125	5000	357	330	306	286	268	252	238	226	214	204	195	187	179	172	165		143
	126	5400	386	356	331	309	289	272	257	244	232	220	210	201	193	185	178	165	154
	145	5800	414	383	355	332	311	292	276	262	248	237	226	216	207	199	191	178	166
	146	6200	443	409	380	354	332	313	296	280	266	253	242	231	222	213	204	190	177
	147	6800	486	449	416	389	364	343	324	307	292	278	265	254	243	233	224	208	194
14'-6"		1350	93	86	80	75	70	66	62	59	56	53	51	49	47	45	43	40	37
	82	2420	167	154	143	134	125	118	111	105	100	96	91	87	84	80	77	1	67
	102	2900	200	185	171	160	150	141	133	126	120	114	109	104	100	96	92	86	80
	103	3790	261	241	224	209	196	185	174	165	157	149	142	136	131	125	121	112	104
	104	4400	304	280	260	243	228	214	202	192	182	173	166	158	152	146	140		121
	123	4230	292	270	250	234	219	206	195	184	175	167	159	152	146	140	135		117
	124	4600	317	293	272	254	238	224	212	200	190	181	173	166	159	152	147		127
	125	5000	345	318	296	276	259	244	230	218	207	197	188	180	172	165	159		138
	126	5400	372	344	319	298	279	263	248	235	224	213	203	194	186	179	172		149
	145	5800	400	369	343	320	300	282	267	253	240	228	218	209	200	192	185		160
	146	6200 6800	428 469	395 433	367 402	342	321 352	302	285	270 296	257 282	244 268	233 256	223	214 234	205	198 216	151 151 158 172 185 50 89 107 129 145 145 152 165 177 46 82 99 124 140 140 146 159 171 43 77 92 119 135 134 141 153 165 178 190 208	171
15'-0'	-	1310	87	81	75	70	66	62	58	55	52	50	48	46	44	42	40		35
-2 0	82	2330	1 00	01	133	124	116	110	00	98	93	89	20	30	78	75	72	t	62



										Con									
C 13		Total			Тота	l Safi	E LOAI	98 IN F	OUND	PER S	SQUARI	Foo1	FOR T	VARIO	js Jois	T SPA	CINGS		
Clear Span	Joist Type	Safe Load Pounds	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23''	24"	25"	26"	28"	30"
15'-0''	102	2810	187	173	161	150	141	132	125	118	112	107	102	98	94	90	87	80	75
	103	3640	243	224	208	194	182	172	162	153	146	139	133	127	122	117	112	104	97
	104	4400	293	271	252	235	220	207	196	185	176	168	160	153	147	141	135	126	117
	123 124	4090 4600	272 307	252 284	234 263	218 246	204	192 217	182 204	172 194	163 184	156	148	142	136	131	126	117	109
	125	5000	333	308	286	267	250	235	222	210	200	175 191	167 182	160	153 167	147	142 154	132 143	123
	126	5400	360	332	308	288	270	254	240	227	216	206	196	188	180	173	166	154	133 144
	145	5800	387	357	332	310	290	273	258	244	232	221	211	202	193	186	179	166	155
	146	6200	413	381	354	330	310	292	276	261	248	236	225	216	207	198	191	177	165
	147	6800	454	419	389	363	340	320	302	286	272	259	248	237	227	218	209	194	181
15'-6"	81	1270	82	76	70	66	62	58	55	52	49	47	45	43	41	39	38	35	33
	82	2260	146	135	125	117	109	103	97	92	88	83	80	76	73	70	67	63	58
	102	2710	175	162	150 195	140 182	131	124	117	111	105	100	96	91	88	84	81	75	70
	103 104	3530 4300	228 278	256	238	222	171 208	161 196	152 185	144 175	137	130	124 152	119	114	109	105	98	91
	123	3960	256	236	219	204	192	180	170	161	153	146	139	133	139 128	133 123	128 118	119	111 102
	124	4600	297	274	254	237	223	210	198	188	178	170	162	155	148	142	137	127	119
	125	5000	323	298	276	258	242	228	215	204	193	185	176	168	161	155	149	138	129
	126	5400	349	322	299	279	262	246	233	220	210	199	190	182	174	167	161	149	139
	145	5800	374	346	321	300	281	264	250	-236	224	214	204	195	187	180	173	160	150
	146 147	6200 6800	400	369 405	343	320 351	300	282 310	267 292	253 277	240 263	228 250	218 239	209	200	192 210	184 202	171	160
																		188	175
16'-0''	81 82	1230 2190	77 137	71 126	66	62 109	58 103	54 97	51 91	49 86	46 82	78	42 75	40 71	38 68	37	35	33	31
	102	2630	164	152	141	132	123	116	110	104	99	94	90	86	82	66 79	63 76	59 70	55 66
	103	3420	213	197	182	170	160	150	142	134	128	122	116	111	106	102	98	91	85
	104	4170	260	240	223	208	195	184	173	164	156	149	142	136	130	125	120	112	104
	123	3840	240	222	206	192	180	170	160	152	144	137	131	125	120	115	111	103	96
	124	4600	287	265	246	230	216	203	192	182	172	164	157	150	144	138	133	123	115
	125 126	5000 5400	312	288 312	268 289	250 270	234 253	221 238	208	197 213	187	178	170	163	156	150	144	134	125
	145	5800	363	335	311	290	272	256	242	213	202 218	193 208	184	176 189	169 182	162 174	156 167	145	135
	146	6200	387	358	332	310	290	274	258	245	233	222	212	202	194	186	179	156 166	145 155
	147	6800	425	392	364	340	319	300	283	268	255	243	232	222	213	204	196	182	170
	166	6400	400	369	343	320	300	282	266	253	240	228	218	208	200	192	185	171	160
	167	7200	450	416	386	360	338	318	300	284	270	257	246	235	225	216	208	193	180
16'-6"	102	2540	154	142	132	123	116	109	103	97	93	88	84	81	77	74	71	66	62
	103	3310	201	185	172	161	151	142	134	127	120	115	109	105	100	96	93	86	80
	104 123	4040 3720	245 226	226	210 193	196 180	184	173 159	164 150	155 143	147 135	140 129	134	128	123	118	113	105	98
	124	4600	279	257	239	223	209	197	186	176	167	159	123 152	118 146	113 140	108 134	104 129	97 120	90
	125	5000	303	280	260	242	227	214	202	192	182	174	166	158	152	146	140	130	121
	126	5400	328	302	280	262	246	231	218	207	197	187	179	171	164	157	151	140	131
	145	5800	352	325	302	281	264	248	235	222	211	201	192	184	176	169	163	151	141
	146	6200	376	347	322	301	282	265	250	237	226	215	205	196	188	180	174	161	150
	147	6800	412	380	353	330	309	291	275	260	247	236	225	215	206	198	190	177	165
	166 167	6400 7200	388 437	358 403	332 374	310 349	291 328	274 308	259 291	245 276	233 262	222 249	212 238	202 228	194 218	186 210	179 201	166	155 175
17'-0"	102	2470	145	134	125	116	109	103	97	92	87	83	79	76	73	70	67	62	
	103	3220	189	175	162	152	142	134	126	120	114	108	103	99	95	91	87	81	58 76
	104	3910	230	212	197	184	173	162	153	145	138	132	126	120	115	110	106	99	92
	123	3610	212	196	182	170	159	150	142	134	127	121	116	111	106	102	98	91	85
	124	4510	265	245	227	212	199	187	177	168	159	152	145	139	133	127	122	114	106



Clear	Joint	Total Safe Load			TOTAL	SAFE	LOADS	IN Po	UNDS	PER SC	UARE	Гоот	FOR V	ARIOUS	Joist	SPACE	NGS		
Span	Type	_	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	28"	30"
17'-0"	125	5000	294	272	252	235	220	208	196	186	177	168	161	154	147	141	136	126	118
	126	5400	318	293	272	254	238	224	212	201	191	182	173	166	159	153	147	136	127
	145	5800	342	315	292	273	256	241	228	215	205	195	186	178	171	164	158	146	137
	146	. 6200	365	337	313	292	273	258	243	230	219	209	199	191	183	175	169	169 157 185 172 174 162 182 162 182 160 93 92 86 115 107 132 122 143 133 153 142 164 152 160 157 190 176 60 56 78 73 95 88 88 81 109 101 128 119 129 148 138 159 148 159 148 159 148 155 162 164 153 175 162 164 153 175 57 53 74 69 90 84 83 77 104 96	146
	147	6800	400	370	343	320	300	282	267	253	240	229	219	209	200	192			160
	166 167	6400 7200	376 424	348 392	323 363	301 339	282 318	266 299	251 283	238 268	226 255	215 242	205 231	197 221	188 212	181 203	196		151 170
17'-6"	102	2400	137	127	118	110	103	97	92	87	82	78	75	72	69	66	_		55
	103	3120	178	165	153	143	134	126	119	113	107	102	97	93	89	86			71
	104	3810	218	201	187	174	163	154	145	138	131	125	119	114	109	105			87
	123	3500 4380	200	185 231	172 214	160 200	150 188	141	133	126 158	120 150	114 143	109 137	104	100 125	96 120			80 100
	124 125	5000	250 286	264	245	229	215	202	191	181	172	163	156	149	143	137			114
	126	5400	309	285	265	247	232	218	206	195	185	177	169	161	154	148	143		124
	145	5800	331	306	284	265	249	234	221	209	199	190	181	173	166	159	153		133
	146	6200	354	327	304	284	266	250	236	224	213	203	194	185	177	170	164	152	142
	147	6800	389	359	333	311	292	274	259	245	233	222	212	203	195	187	180	167	156
	166	6400	366	338	314	293	275	258	244	231	220	209	200	191	183	176	169		147
	167	7200	411	380.	353	329	308	290	274	260	247	235	225	215	206	197	190		165
18'-0"		2330	129	120	111	104	97	92	86	82	78	74	71	68	65	62			52
	103	3040	169	156	145	135	127	119	113	107	101 124	97	92	88 108	85 103	81			68 83
	104	3710 3410	205	190	177 163	165 152	155 142	146	138	130 120	114	118	113	99	95	99			76
	123	4260	236	218	203	190	178	167	158	150	142	135	129	124	119	114			95
	125	5000	278	256	238	222	208	196	185	175	167	159	152	145	139	133	128		111
	126	5400	300	277	257	240	225	212	200	190	180	172	164	157	150	144	139		120
	145	5780	321	296	275	257	240	227	214	203	193	184	175	168	161	154	148	138	129
	146	6200	344	318	295	276	259	243	230	218	207	197	188	180	172	165	159		138
	147	6800	378	349	324	302	284	267	252	239	227	216	206	197	189	182			151
	166	6400 7200	356	328. 369	305	285 320	300	251 282	237	225 253	213 240	203	194	186	178 200	171			143
18'-6"	167		400		105	98	92	87	82	78	74	70	67	64	61	59			49
180	102	2270 2960	123 160	113	137	128	120	113	107	101	96	92	88	84	80	77		1	64
	104	3600	195	180	167	156	146	138	130	123	117	111	106	102	98	94			78
	123	3320	180	166	154	144	135	127	120	113	108	103	98	94	90	86	1		72
	124	4150	225	207	193	180	169	159	150	142	135	128	122	117	112	108	104	96	90
	125	5000	270	250	232	217	203	191	181	171	162	155	148	141	135	130	125	116	108
	126	5400	292	270	250	234	219	206	195	185	175	167	159	152	146	140	135	125	117
	145	5630	305	281	261	244	229	215	203	193	183	174	166	159	153	147	141	131	122
	146	6200	335	309	287	268	251	236	224	212	201 221	192 210	183	175 192	168	161 176	155 170	144	134
	147	6800 6400	367 346	339	315 297	294	276 260	259 245	245 231	232	208	198	189	181	173	166	160	148	138
	167	7200	389	359	334	312	292	275	260	246	234	223	212	203	195	187	180	167	156
19'-0'	102	2210	116	107	100	93	87	82	78	74	70	66	63	61	58	56	54	50	47
	103	2880	151	140	130	121	114	107	101	96	91	87	83	79	76	73	70	65	61
	104	3510	184	171	159	148	139	131	123	117	111	106	101	97	93	89	85	79	74
	123	3230	170	157	146	136	128	120	113	107	102	97	93	89	85	82	79	73	68
	124	4040	212	197	183	170 210	160	150	142	135 166	128 158	122	116	111	106	102	98	91	85
	125 126	4990 5400	263 284	243 263	225	228	214	201	190	180	171	162	155	148	142	137	131	122	114
	145	5480	288	266	247	231	217	201	193	183	173	165	158	151	145	139	134	124	115
	146	6200	326	301	280	261	245	230	218	206	196	187	178	170	163	157	151	140	131
	147	6800	358	330	307	286	269	253	239	226	215	205	195	187	179	172	165	154	143



Class	Toigt	Total Safe Load		'	TOTAL	SAFE	Loads	in Po	UNDS	PER SC	UARE	Foot	FOR V	ARIOUS	Joist	SPACE	ngs		
Clear	Joist Type	Pounds	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	28"	30"
19'-0''	166 167	6400 7200	337 379	311 350	289 325	270 303	253 284	238 268	225 253	213 239	202 227	193 217	184 207	176 198	168 190	162 182	156 175	145 163	135 152
19'-6"	102	2150	110	102	95	88	83	78	74	70	66	63	60	58	55	53	51	47	44
	103	2810 3420	144	133	124	115	108 132	102	96	91	87 105	83	79	75	72	69	67	62	58
	123	3140	161	149	138	129	121	114	107	102	97	100	96 88	92 84	88	84	81 74	75 69	70 64
	124	3930	202	186	173	161	151	142	134	127	121	115	110	105	101	97	93	86	81
	125	4850	249	230	213	199	187	176	166	157	149	142	136	130	124	119	115	107	99
	126	5400	277	256	238	222	208	196	185	175	167	158	151	145	139	133	128	119	111
	145 146	5340 6200	274 318	253 293	235 273	219 255	206	194	183	173 201	165 191	157	150 174	143	137	132	126	117	109
	147	6800	349	322	299	280	262	246	233	220	210	200	191	166 182	159 175	153 168	147	136 150	127
	166	6400	328	303	282	263	247	232	219	208	197	188	179	172	164	158	152	141	131
	167	7200	369	341	317	295	277	261	246	234	222	211	202	193	185	178	171	159	148
20'-0"	102	2100	105	97	90	84	79	74	70	66	63	60	57	55	53	-51	49	45	42
	103	2730	137	126	117	109	102	96	91	86	82	78	75	71	68	66	63	59	55
	104	3340 3060	167 153	154	143	134	125 115	118	111	105 97	100	95 88	91 84	87	84 77	80	77	72	67
	124	3830	192	177	164	153	144	135	128	121	115	109	104	100	96	74 92	71 89	66 82	61 77
	125	4740	237	219	203	190	178	168	158	150	142	135	129	124	119	114	109	102	95
	126	5400	270	249	232	216	203	191	180	171	162	154	148	141	135	130	125	116	108
	145	5200 6200	260 310	240 286	223 266	208 248	195 232	184	174	164	156	149	142	136	130	125	120	112	104
	146	6800	340	314	292	272	255	240	207	196 215	186 204	177 195	169 186	162 178	155 170	149 163	143 157	133	124
	166	6400	320	295	275	256	240	226	213	202	192	183	175	167	160	154	148	146 137	136 128
	167	7200	360	332	309	288	270	254	240	228	216	206	197	188	180	173	166	155	144
20'-6"	123	2990	146	135	125	117	110	103	97	92	88	83	80	76	73	70	67	63	58
	124	3740	182	168 208	156	146	137	129	122	115	109	104	99	95	91	88	84	78	73
	125 126	4620 5400	225 264	243	193 226	180	169 198	159 186	150 176	142 167	135 158	129 151	123 144	117 138	112 132	108 127	104	97	90
	145	5070	247	228	212	198	186	175	165	156	148	141	135	129	124	119	122 114	113	106 99
	146	6200	302	279	259	242	227	213	201	191	182	173	165	158	151	145	140	130	121
	147	6800	332	306	284	265	249	234	221	210	199	190	181	173	166	159	153	142	133
	166 167	6400 7200	312 351	288 324	268 301	250 281	234 263	220 248	208 234	197 222	187 211	178 201	170 192	163 183	156 176	150 169	144 162	134 151	125 140
21'-0"	123	2920	139	128	119	111	104	98	93	88	83	79	76	73	70	67	64	60	56
	124	3650	174	161	149	139	130	123	116	110	104	99	95	91	87	83	. 80	75	70
	125	4510	215	198	184	172	161	152	143	136	129	123	117	112		103	99	92	86
	126	5400	257	237	220	206	193	182	172	162	154	147	140	134	129	124	119	110	103
	145 146	4950 6200	236 295	217 273	202 253	189 236	177 222	166 209	157 197	149 187	142 177	135 169	129 161	123 154	118	113	109 -	101	94
	147	6800	324	298	277	259	243	229	216	205	194	185	177	169	148	142 155	136 149	127 139	118 129
	166	6400	305	281	261	244	229	215	203	193	183	174	166	159	153	147	141	131	122
	167	7200	343	316	294	274	257	242	229	217	206	196	187	179	172	165	158	147	137
21'-6"	123	2850	133	122	114	106	100	94	88	84	80	76	72	69	66	64	61	57	53
	124 125	3560 4400	165 204	153 189	142 175	132 164	124 153	117 144	110 136	104 129	99 123	95	90	86	83	80	76	71	66
	126	5400	251	232	215	201	188	177	167	158	150	117 143	112 137	107 131	102 125	98 120	95 116	88 107	82 100
	145	4840	225	208	193	180	169	159	150	142	135	129	123	117	113	108	104	97	90
	146	6200	288	266	247	230	216	203	192	182	173	165	157	150	144	138	133	123	115
	147	6800	316	292	271	253	237	223	211	200	190	181	172	165	158	152	146	135	126
	166 167	6400 7200	298 335	275 309	255 287	238 268	223 251	210 236	199 223	188 211	178 201	170 191	162	155	149	143	137	128	119
	101	1200	000	000	201	200	201		1 1 2		201	191	183	175	167	161	154	143	134



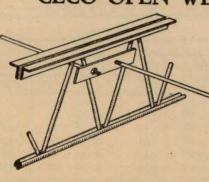
										Con			_						
Clear	Joist	Total Safe Load			Тота	l Safi	LOAI	s in P	OUNDS	PER S	QUARI	Foot	FOR \	ARIOU	s Joie	T SPAC	CINGS		
Span	Type		12"	13"	14"	15"	16"	17"	18"	19"	20′′	21"	22"	23''	24"	25"	26"	28"	30"
22'-0"	123	2790	127	117	109	101	95	90	85	80	76	73	69	66	63	61	59	54	51
	124	3480	158	146	136	127	119	112	105	100	95	91	86	83	79	76	73	68	63
	125	4300	196	181	168	157	147	138	130	124	117	112	107	102	98	94	90	84	78
	126	5300	241	223	207	193	181	170	161	152	145	138	132	126	121	116	111	103	97
	145	4730	215	199	185	172	162	152	144	136	129	123	117	112	108	103	100	92	86
	146	6200	282	260	242	226	212	199	188	178	169	161	154	147	141	135	130	121	111
	147	6800	309	285	265	247	232	218	206	195	185	177	168	161	154	148	143	132	123
	166 167	6400 7200	291 327	269 302	250 280	233 262	218 245	206	194 218	184 206	175 196	166 187	159 178	152 171	146 164	140	134 151	125 140	116 131
22'-6"	123	2730	121	112	104	97	91	86	81	77	73	69	66	63	61	58	56	52	48
22 -0	124	3410	152	140	130	121	114	107	101	96	91	87	83	79	76	73	70	65	61
	125	4210	187	173	160	150	140	132	125	118	112	107	102	98	94	90	86	80	75
	126	5180	230	213	197	184	173	163	154	146	138	132	126	120	115	111	106	99	92
	145	4620	205	189	176	164	154	145	137	130	123	117	112	107	103	99	95	88	82
	146	6060	269	249	231	215	202	190	180	170	162	154	147	141	135	129	124	115	108
	147	6800	302	279	259	242	227	214	202	191	181	173	165	158	151	145	140	130	121
	166	6400	284	263	244	228	214	201	190	180	171	163	155	149	142	137	131	122	114
	167	7200	320	296	274	256	240	226	214	202	192	183	175	167	160	154	148	137	128
23'-0"	123	2670	116	107	100	93	87	82	77	73	70	66	63	61	58	56	54	50	46
	124	3330	145	134	124	116	109	102	97	92	87	83	79	76	72	70	67	62	58
	125	4120	179	165	154	143	134	126	119	113	107	102	98	94	90	86	83	77	72
	126	5060	221	203	189	176	165	155	147	139	132	126	120	115	110	106	102	94	88
	145	4520	197	182	169	157	147	139	131	124	118	112	107	103	98	95	91	84	79
	146	5940	258	238	221	206	194	182	172	163	155	147	141	135	129	124	119	111	103
	147	6800 6400	296 278	273 257	254 238	237 223	222	209	197 186	187	178 167	169 159	161 152	154 145	148	142	137 128	127	118
•	167	7200	313	289	268	250	235	221	209	198	188	179	171	163	157	150	144	134	125
23'-6"	123	2610	111	103	95	89	83	78	74	70	67	64	61	58	56	53	51	48	44
	124	3260	139	128	119	111	104	98	93	88	83	79	76	72	70	67	64	59	56
	125	4040	172	159	147	138	129	121	115	108	103	98	94	90	86	83	80	74	69
	126	4960	211	195	181	169	158	149	141	133	127	121	115	110	106	101	97	90	84
	145	4430	189	174	162	151	141	133	126	119	113	108	103	98	94	91	87	81	76
	146	5800	247	228	212	198	185	174	165	156	148	141	135	129	123	119	114	106	99
	147	6800	290	267	248	232	217	204	193	183	174	165	158	151	145	139	134	124	116
	166	6400 7200	306	252 283	234 263	218 245	204	192 216	182 204	172	164	156 175	149	142	136	131	126 142	117	109
24'-0"	-	2550	106	-98	91	85	80	75	71	67	64	61	58	55	53	51	49	46	42
0	124	3190	133	123	114	106	100	94	89	84	80	76	73	69	67	64	61	57	53
	125	3950	164	152	141	132	124	116	110	104	99	94	90	86	82	79	76	71	66
	126	4860	202	187	174	162	152	143	135	128	121	116	110	105	101	97	93	87	81
	145	4340	180	167	155	145	135	127	120	114	108	103	99	94	90	87	83	77	72
	146	5690	237	219	203	190	178	168	158	150	142	135	129	124	119	114	110	102	95
	147	6800	283	261	242	226	212	200	189	179	170	162	155	148	142	136	131	121	113
	166	6400	267	246	228	214	200	188	178	168	160	152	145	139	133	128	123	114	107
	167	7200	300	277	257	240	225	212	200	190	180	171	164	157	150	144	138	129	120
24'-6"	145	4250	174	160	149	139	130	122	116	110	104	99	95	91	87	83	80	74	69
	146	5570	227	210	195	182	170	160	151	143	136	130	124	119	114	109	105	98	91
	147	6690	273	252	234	218	205	192	182	172	163	156	149	142	136	131	126	117	109
	166	6310 7200	258 294	238 271	221 252	206	193 221	182 208	172 196	163 186	155	147	141	135 153	129	124 141	119	110 126	103
25'-0'										-									-
20 -0	145	4160 5450	166 218	153 201	142	133 174	125 163	117	111 145	105	100	95 125	91	87	83 109	80	101	93	66
	1 140	0400	210	201	191	1/4	103	104	140	191	191	120	119	114	109	100	101	1 89	91



		Total			Tota	l Safi	LOAD	s in P	OUNDS	PER S	SQUARI	Foor	FOR V	VARIOU	s Jois	T SPA	CINGS		
Clear Span	Joist Type	Safe Load Pounds	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	28"	30"
25′-0′′	147	6560	262	242	225	210	197	185	175	166	157	150	143	137	131	126	121	112	105
	166	6180	247	229	212	198	186	175	165	156	148	141	135	129	124	119	114	106	99
	167	7200	288	266	247	230	216	204	192	182	173	165	157	150	144	138	133	123	115
25′-6′′	145	4080	160	148	137	128	120	113	107	101	96	91	87	83	80	77	74	69	64
	146	5350	210	194	180	168	158	148	140	133	126	120	114	110	105	101	97	90	84
	147	6430	252	233	216	202	189	178	168	159	151	144	137	131	126	121	116	108	101
	166	6060	238	220	204	190	178	168	159	150	143	136	130	124	119	114	110	102	95
	167	7200	282	261	242	226	212	199	188	178	170	162	154	148	141	136	130	121	113
26'-0''	145	4000	154	142	132	123	115	108	102	97	92	88	84	80	77	74	71	66	61
	146	5250	202	187	173	162	152	143	135	128	121	115	110	105	101	97	93	87	81
	147	6300	243	224	208	194	182	171	162	153	146	138	132	127	121	116	112	104	97
	166	5950	229	211	196	183	172	162	153	145	137	131	125	119	115	110	106	98	92
	167	7200	277	256	237	222	208	196	184	175	166	158	151	145	139	133	128	119	111
26'-6''	145	3920	148	137	127	118	111	105	99	94	89	85	81	77	74	71	68	63	59
	146	5150	194	179	167	155	146	137	130	123	117	111	106	101	97	93	90	83	78
	147	6180	234	216	200	187	175	165	156	147	140	133	127	122	117	112	108	100	93
	166	5840	220	203	189	176	165	155	147	139	132	126	120	115	110	106	102	94	88
	167	7060	267	246	229	213	200	188	178	168	160	152	146	139	133	128	123	114	107
27'-0'	145	3850	143	132	122	114	107	101	95	90	86	82	78	75	71	69	66	61	57
	146	5050	187	173	160	150	140	132	125	118	112	107	102	98	94	90	86	80	75
	147	6070	225	208	193	180	169	159	150	142	135	129	123	117	112	108	104	96	90
	166	5730	212	196	182	170	159	150	141	134	127	121	116	111	106	102	98	91	85
	167	6940	257	237	220	206	193	181	171	162	154	147	140	134	128	123	119	110	103
27'-6''	145	3780	137	127	"118	110	103	97	92	87	83	79	75	72	69	66	63	59	55
	146	4960	180	166	154	144	135	127	120	114	108	103	98	94	90	87	83	77	72
	147	5960	217	200	186	173	162	153	144	137	130	124	118	113	108	104	100	93	86
	166	5630	204	189	175	164	154	144	136	129	123	117	112	107	102	98	94	88	82
	167	6810	248	229	212	198	186	175	165	156	149	142	135	129	124	119	114	106	99
28′-0″	145 146 147 166 167	3720 4880 5850 5520 6690	133 174 209 197 239	123 161 193 182 221	114 149 179 169 205	106 139 167 158 191	100 131 157 148 179	94 123 147 139 169	89 116 139 131 159	84 110 132 124 151	80 105 125 118 143	76 100 120 113 137	72 95 114 107 130	69 91 109 103 125	66 87 105 99 119	64 84 100 95 115	61 81 96 91 110	57 75 90 84 102	53 70 84 79
28'-6"	166 167	5430 6570	191 230	176 213	163 197	152 184	143 173	135 163	127 153	120 145	114 138	109	104 126	100 120	96 · 115	92 110	88 106	82 98	96 76 92
29'-0''	166	5340	184	170	158	147	138	130	123	116	111	105	100	96	92	88	85	79	74
	167	6460	223	206	191	178	167	157	148	141	134	127	122	116	111	107	103	96	89
29'-6"	166	5240	178	164	152	142	133	125	118	112	107	102	97	93	89	86	82	76	71
	167	6350	215	198	184	172	162	152	143	136	129	123	117	112	108	103	99	92	86
30′-0′′	166	5150	172	159	147	138	129	121	114	109	103	98	94	90	86	83	79	74	69
	167	6240	208	192	178	167	156	147	139	131	125	119	113	108	104	100	96	89	83
30′-6′′	166	5070	166	153	142	133	125	117	111	105	100	95	91	87	83	80	78	71	67
	167	6140	201	186	172	161	151	142	134	127	121	115	110	105	100	97	93	86	81
31′-0′′	166 167	4990 6050	161 195	149 180	138 . 167	129 156	121 146	114 138	107 130	102 123	97 117	92	88 106	84 102	81 98	77 94	74 90	69 84	64 78
31′-6″	167	4910 5950	156 189	144	134 162	125 151	117 142	110	104 126	99	94	89 108	85 103	81 99	78 95	75 91	72 87	67 81	62 76
32′-0′′	166 167	4840 5860	151 183	140 169	130 157	121 146	113 137	107 129	101 122	96 116	91	86 105	82 100	79 96	76 92	73 88	70 85	65 79	60 73



CECO OPEN WEB JOISTS USED AS PURLINS



When joists are used as purlins on a sloping roof, sag rods should be used as shown above. The number of lines to be as follows:

Span of Joists up to 14'-0"

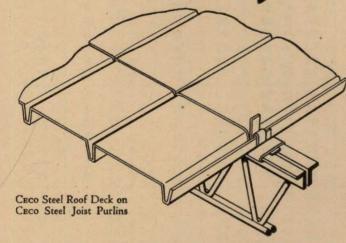
No. of Rows of Rods

1 Row pear center

14'-0" to 21'-0"

2 Rows

21'-0" to 32'-0" 3 Rows



The CECO OPEN WEB STEEL JOIST is economical as a purlin section for any type of roof construction. The CECO PURLIN, designed in accordance with Steel Joist Institute specifications, provides required strength and security, yet it weighs about one-half as much as the steel channel purlin required for the same load, assuring economy of construction. For wood deck or corrugated sheet, a nailing strip is securely attached to the top chord before leaving the factory, eliminating field labor.

The CECO PURLIN is easily erected, bolted or welded to supporting steel work, and maintains a vertical position. Use standard CECO BRIDGING for flat roofs. For pitched or curved roofs, use sag rods as shown below. Carrying capacities are given on the following pages.

CECO STEEL ROOF DECK

The economy of CECO STEEL ROOF DECK is in its unusual strength and light weight, permitting wider purlin spacing and reducing structural weight. It is simply and quickly installed, requiring only a common hammer. The ends and sides on all plates interlock, assuring a smooth,

unbroken roof surface, yet allowing uniform expansion and contraction. CECO STEEL ROOF DECK effectively protects against wind, water and fire and is suitable for any type of building with either flat, pitched or arched roof.

Table of Safe Loads for Ceco Steel Roof Deck

Total of Live and Dead Safe Uniformly Distributed Loads in Pounds per Square Foot.

Purlin Spacing

1½ Ribs 6-in. centers	Weight, per square, lb.	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
18-gauge 20-gauge		162 122	127 95	102 77	84 63	70 52	59 45	51 38	44 33	39 29	34
22-gauge		101	79	63	52	43					



PARTIAL LIST OF CECO PRODUCTS

Metal Windows and Doors • Metal Frame Screens • Metal Weatherstrips • Steel Joists, Steel Roof Deck . Metal Lath and Accessories Meyer Steelforms, Concrete Reinforcing Bars, Welded Steel Fabric, Adjustable Shores, Column Clamps, Bar Chairs and Spacers • Highway Products . Corrugated Double-Drain Roofing and Accessories, Aluminum Roofing . Galvanized and Black Sheets . Conductor Pipe, Trough and Fittings • Ventilators • Nails and Wire, Netting and Fencing, Steel Posts • Ask for complete details

*Atlanta

GENERAL OFFICES AND MANUFACTURING DIVISION HEADQUARTERS

Digitized by:



ASSOCIATION
FOR
PRESERVATION
TECHNOLOGY,
INTERNATIONAL
www.apti.org

BUILDING TECHNOLOGY HERITAGE LIBRARY

https://archive.org/details/buildingtechnologyheritagelibrary

From the collection of:

NATIONAL BUILDING ARTS CENTER

http://web.nationalbuildingarts.org